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DATAMATION 85®

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JAPAN TRADE: THE HURDLES GET LOWER

ANNUAL MINI-MICRO SURVEY

DATA INTEGRATION TECHNOLOGY

ON THIN ICE: MICROS AND DATA INTEGRITY

DATAMATION

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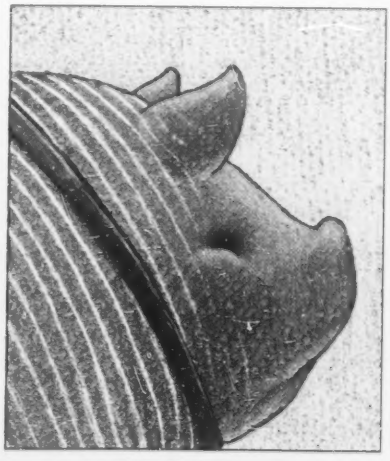

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IN FOCUS

IBM'S PC PACES THE PACK

Our annual mini/micro survey forecasts familiar faces in the winner's circle.

by John W. Verity

Minicomputer shipments during the year ending June 1986 will be up just 13.3% over the previous year in terms of dollar volume, according to the 1985-86 DATAMATION/Cowen & Co. mini/micro computer survey. This represents a substantial decline from the 25% growth forecast in last year's survey and is attributable largely to the ongoing strength of IBM's PC family.

Meanwhile, there will be a continuing deceleration of growth in personal computer shipments—only 24% growth in dollar volume compared with the 63% forecast last year—even as micros continue to encroach on business that once went to minis alone. The survey, made in July and August, found about a quarter of all mini sites (24%) and two fifths of pc sites (39%) expecting to spend more for those types of equipment in the year ending June 1987 than they will have spent in the previous 12 months.

Special attention was paid this year to, among other topics, AT&T and its Unix operating system, the needs and plans of those using Digital Equipment VAX computers, the IBM PC and related software markets, and the effect of pcs on minicomputer markets.

This year's survey tallied responses from 6,412 mini/micro sites where 27,557 minicomputers were operated and some 90,000 personal computers were purchased in the past year and a half. Most of these sites (93%) are end users, as opposed to systems houses and oems, which ultimately resell the gear they described for the survey.

As in previous surveys, results show that the rate at which minicomputer makers are signing up new users is falling as the market matures. The compound annual growth rate of the user base is 9% for the past five years, but 15% for the past eight years. The minicomputer system types showing the strongest growth in new users are workstations and intelligent terminals, which outperformed small business systems, traditional minis, and data entry and office systems.

One traditional application area for minis, scientific/engineering calculation, will slip almost a full percentage point in its share of the total shipments indicated by respondents for 1985-86. The strongest application areas appear to be standalone business data processing, on the strength of IBM's S/36.

Market activity seems dampened. Although responses varied according to the mode of buying and the primary equipment vendor involved, users indicated less anticipation than last year that their pc and mini suppliers would unveil major systems in coming months. Last year's survey found 26% of the minicomputer sites and 38% of the pc sites expecting major announcements, but this year the comparable numbers were 23% and 32%, respectively. The fall in expectations held among end-user and oem/systems house sites alike, although 37% of the latter (down from 45% last year) still said they expected to see major product introductions soon. Among the vendors seen as most likely to spring new products are Data General, Hewlett-Packard, and Apollo Computer of Chelmsford, Mass. The products mentioned as likely to surface include DEC's MicroVAX III and machines code-named Scorpio, Nautilus, Neptune, and Nebulus; HP's Spectrum; Data General's MicroEagle and MV/12000; and IBM's long-expected PC2.

Where important new products have been introduced or first shipped since the last survey, shifts have occurred in buying patterns. For instance, in terms of dollars, DEC VAX sites indicated a growing appetite for the model 8600 system (37.4% of the total spending for VAX equipment during the next 18 months, compared with 15.3% for the last 18 months), while the original VAX-11/780 and its companion model 785's dollar share tapered from a total of 56.3% in the previous 18 months to 31.6%. The MicroVAX II has gone from a mere 0.5% of

Among the vendors seen as most likely to spring new products are Apollo, Data General, and HP.

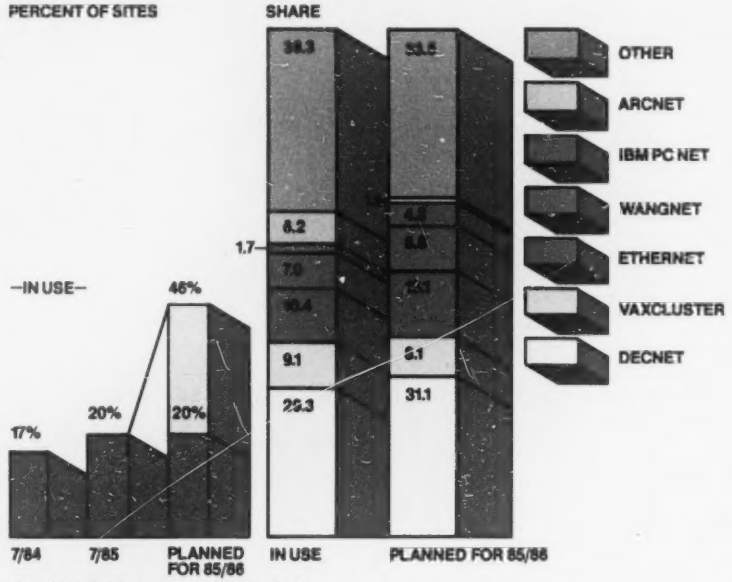
VAX spending to 15%. Indeed, in both technical and commercial arenas, the MicroVAX II was mentioned by 45% of VAX sites as the primary VAX machine for new applications: the prospects for that VLSI-based machine to grab a large share of the total VAX pie seem substantial. Nevertheless, the venerable PDP-11 is still holding its own at 16% of the value of all DEC shipments to responding sites.

In most cases, average minicomputer system prices have risen substantially in the past five years, more than doubling for some vendors. For instance, Data General machines purchased in 1980-81 averaged $35,000, but those purchased in 1984-85 went for an average of $101,000. Machines from Tandem Com-

FIG. 1

LOCAL AREA NETWORKS

Query: Do you have in use now, or do you plan to use initially in 1985/86, a local area network (LAN)?



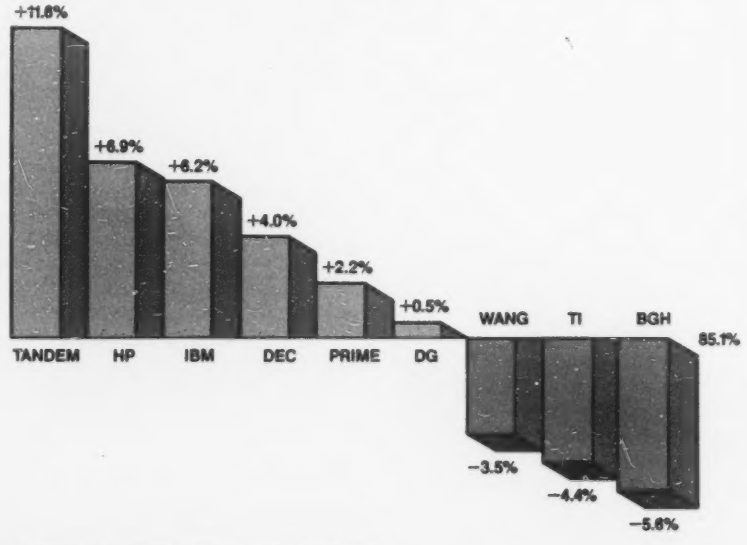
*Implicit 74%, 1.5-year compound growth rate
**Includes 3-COM 3.0%, Novell 2.6%, Sytek 0.9%, AT&T Starlan 1.3%, AT&T Other 2.5%, Primenet 1.3%, etc.

FIG. 2

CUSTOMER LOYALTY

Query: Do you expect to change to another manufacturer as your primary source of minicomputers in 1985/86?

PERCENT RELATIVE TO TOTAL SURVEY AVERAGE OF 85.1% ANSWERING NO*



*As opposed to answering Yes or Seriously Considering

puters of Cupertino, Calif., and Prime Computer of Nadick, Mass., however, now sell for a lower price than five years ago: for example, Tandem's average system price was $268,000 then but is only $202,000 now. The increasing popularity of DEC's MicroVAX II will probably trigger a fall from $143,000 to $98,000 in the average price of DEC systems purchased during 1984-85 and 1985-86, respectively.

For Data General, the most important 32-bit machines will be the highest-performance MV models, the 10000 and upcoming 12000, accounting for a total of 55.7% of the total planned purchases by respondents. The original model 8000's share (including the 8000-2) of 32-bit dollars spent with that vendor will fall from 36% in 1984-85 to only 10.6% in the next 18 months. Similarly, Prime stands to see 53.9% of its revenues from survey respondents come from its model 9955.

Average minicomputer system prices have risen substantially in the past five years, more than doubling for some vendors.

AT&T, once a major source of business for minicomputer vendors, has shifted to its own systems in a big way. In the upcoming 18 months, the survey shows, AT&T sites will use AT&T minis 93.1% of the time, while DEC's share continues to fall, hitting near bottom at a mere 3.4%. Nevertheless, AT&T has had only limited success in penetrating minicomputer markets beyond its own boundaries. About 76.3% of the purchases of AT&T 3B minis planned by respondents will go to internal AT&T sites. Of the 3Bs used by respondents, 67.5% are scheduled for communications work (including systems run by the Bell operating companies), 9.2% for education, and 11.3% for financial services systems.

The Unix operating system, on which AT&T has been relying as a wedge into the IBM-dominated market, still ranks low on users' lists of criteria for selecting computer systems. Both technical and commercial sites ranked "strong Unix offering" as only the 12th most important criterion, while compatibility with installed systems and hardware reliability were most important to those two types of users, respectively.

As a primary operating system, Unix has made only modest inroads: 7.8% of the respondents indicated that Unix is now their main operating system and another 4.4% said it would become their main system in the next 18 months. But that future total of 12.2% is down from the comparable figure of 13.8% measured last year. A similar drop, from 18.2% last year to 15.8%, was seen in the

use of Unix as a secondary system.

Evidently, newer suppliers such as AT&T, Sun Microsystems of Mountain View, Calif., and Altos Computer Systems of San Jose have come to depend on Unix and its derivatives most heavily. Only 14.3% of DEC sites, for instance, said Unix would be their primary operating system, but users of Sun, Altos, and AT&T each showed greater than 92% planned usage. Of current users of Unix, DEC sites are most heavily represented, with 35%. Next are IBM at 10% and HP at 9%. And, not surprisingly, Unix is more widely used in technical than in commercial applications, particularly in software development. AT&T's System V is the most popular Unix variant, followed by the Berkeley 4.2 version and Microsoft's Xenix.

Slight increases were found in the use of such advanced programming languages as Ada, Lisp, and Prolog. Respec-

AT&T, once a major source of business for minicomputer vendors, has shifted to its own systems in a big way.

tively, 7.4%, 8.9% and 4.3% of survey respondents said they would use those languages by the end of next year. Lisp was found most heavily used in educational sites followed by software development sites.

Interest in fault tolerant systems held at traditional survey levels, but doubts about the real size of this market raised by past years' surveys were confirmed. Asked if they would like their current vendor to supply a fault tolerant version of its minicomputer system, 3.1% of respondents said they already had such a machine installed, 15% said they would like such a system and would pay extra for it, and 36% said yes, but they would not pay extra for it. When asked if they would still be interested in this capability if it were not compatible with their current systems (say, an IBM 370 or VAX), 40.5% said no and only 10.5% said yes. As noted last year, this response suggests a much narrower market potential for new, proprietary fault tolerant systems than might have been expected.

In the "integrated" office systems arena, it was found that a handful of suppliers has captured the majority of installations, both planned and existing. IBM was found to have a 23.7% share, about even with DEC's 22.9% share; they were followed by Wang's 11.8%, Data General's 10.6%, and HP's 5.1%. Altogether, only 18% of survey sites had such systems installed or planned for future installation; usage is heaviest with large organizations (e.g., 31% of users showing annual revenues over $500 million). Except where IBM is the principal supplier—where mainframes still dominate and networked PCs are on the rise—integrated office systems tend to be based on shared minis. Forty-nine percent of the office system users said IBM communications compatibility (i.e., under System Network Architecture) was "very desirable."

Previous surveys in this series have shown the microcomputer in general, and IBM's PC in particular, making strong inroads in markets that were once the province of minicomputers. The microcomputer continues to extend its reach, although not as strongly as in the past few years. Last year, for instance, the year-to-year growth in new pc users within the survey population was measured at 65%, but this year's growth is only 22%. This suggests a maturation of the market in which most sites already have at least one pc installed. There may be only single-digit growth by next year. The slowdown in growth seems to be taking place among sites using all types of pcs—IBM, Apple, and all the rest.

The few new pc users are, not surprisingly, choosing IBM as their main supplier. That company has gained 63.3% of new pc users in the past year, compared with Apple's mere 4.6%.

The application of pcs is strongest among banking and educational sites. Asked how many hours on average they used their pcs, respondents matched last year's number of 4.9 hours. The most rap-

FIG. 3

TOP DOZEN MINICOMPUTER SYSTEMS 1985/86

A. BASED ON NUMBER OF RESPONDENTS ACQUIRING SYSTEMS (7/85–12/86)

MANUFACTURER	SYSTEM	HOW MANY SITES ACQUIRING	AVERAGE UNITS PER SITE
IBM	System/36	224	7.9
DEC	MicroVAX-II	196	2.9
DEC	VAX, Unspecified	83	2.0
DEC	VAX-11/750	83	1.3
DEC	VAX 8600	75	1.4
DEC	VAX-11/785	67	1.4
DEC	VAX-11/780	64	1.3
HP	3000, Unspecified	52	2.8
IBM	System/38	47	1.2
DEC	PDP-11/84	42	1.8
DG	MV/4000	36	3.2
IBM	Series/1	34	9.8

B. BASED ON NUMBER OF UNITS BEING ACQUIRED (7/85–12/86)

MANUFACTURER	SYSTEM	HOW MANY UNITS BEING ACQUIRED	EST. VALUE ($ MILLIONS)
IBM	System/36	1,774	$103.4
DEC	PDP-11/73	621	9.3
DEC	MicroVAX-II	567	21.2
Burroughs	B20/B25	345	2.1
IBM	Series/1	332	12.7
Altos	986	251	2.5
DEC	VAX, Unspecified	164	35.6
HP	3000, Unspecified	144	31.2
Data General	Eclipse, MV/4000	144	12.2
DEC	VAX 8600	104	53.1
DEC	VAX-11/750	104	13.8
Data General	Eclipse, MV Unspecified	104	5.7

- The respondents also plan to acquire:
  - 95 DEC VAX-11/785s for $26.2 million and 81 VAX-11/780s for $22.9 million
  - 21 AT&T 3B20s for $6.3 million, 224 3B2s for $7.5 million
  - 95 DG MV/10000s for $19.6 million
  - 56 IBM System/38s for $14.8 million
  - 25 Prime 9955s for $8.6 million
- In total, 2,094 respondents reported plans to acquire 9,867 systems valued at over $693 million between 7/85 and 7/86.

id rise in pc applications has been in remote terminal emulation and graphics processing, but spreadsheet and word processing work continue to dominate.

In terms of sites, the "independent store" remains the predominant channel through which to acquire a pc (53.8%), particularly for machines from Houston-based Compaq Computer Corp. (88% of sites). About 63% of IBM sites buy from a store and another 25% buy direct from IBM. (For DEC, HP, and Wang, over 60% buy direct from the manufacturer.) When measured in terms of unit volume, however, "direct from manufacturer" is the leading channel of acquisition (51.8%). A shift was noted in the source of IBM PCs, from direct to the independent store, suggesting that Apple is losing retail shelf space. On the other hand, educational sites, where Apple is particularly strong, are heavily skewed toward acquisition direct from the vendor.

Even more than hardware, pc software is bought at independent stores. While only 22.9% of such software comes directly from the manufacturer, 58.2% comes from independent stores.

Selection of pcs is based heavily on compatibility with prior systems and the availability of software. While a quarter of the responding sites mentioned the viability of their pc vendor as a major selection criterion, the other two factors were each mentioned by 60% of the sites. For the first time, the IBM PC ranked ahead of Apple for software availability, but the industry leader's machine continued to lag the Silicon Valley vendor when it comes to ease of use and quality of displays.

Software continues to capture a rising share of the average user's pc spending. Software purchases accounted

As a primary operating system, Unix has made only modest inroads.

for 19.2% of the spending in the 12 months preceding the survey and stand to make up 20.4% of the coming year's spending. Helping to fuel that trend is the continuing perception by users that the quality of pc software exceeds that of minicomputer packages.

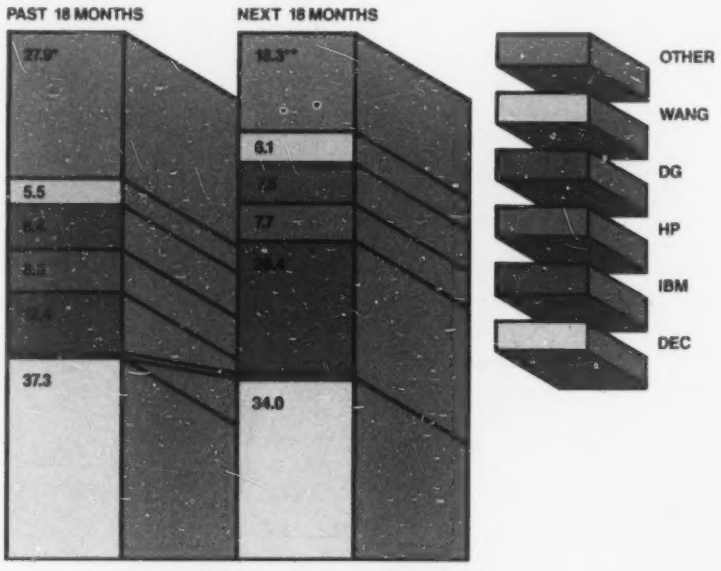
Lotus 1-2-3 and Wordstar continue to rank as the leading software packages for pcs among survey respondents. The former was mentioned by 68% of respondents while the latter was mentioned by 41%. Runners-up included various database packages and Multiplan. Lotus's Symphony showed up at only 20.8% of the sites, while IBM's DisplayWrite came in just under MultiMate's score of 7.3%. Nevertheless, IBM stands to push its way into the top five software packages to be used in the upcoming 18 months

FIG. 4

MINICOMPUTER PURCHASES

TOTAL SYSTEMS

PERCENT OF INDICATED SPENDING (IN DOLLARS)

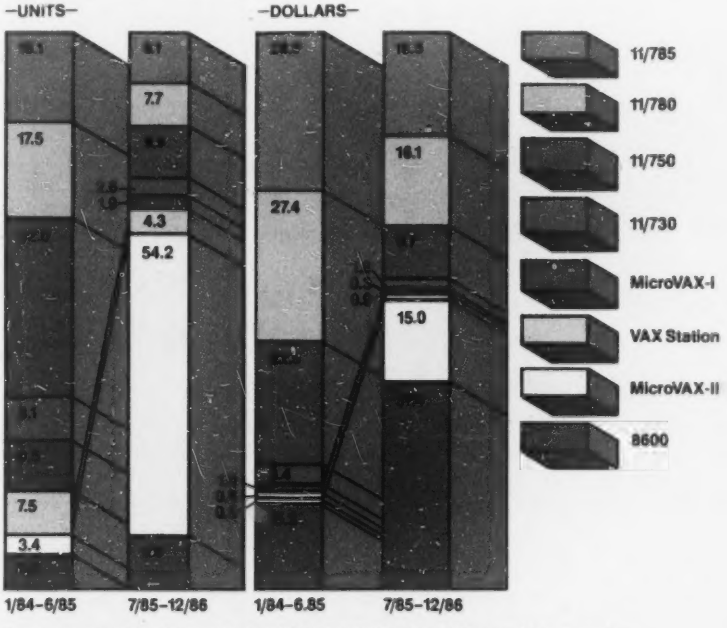


*Past 18 months includes: Prime 5.9%, AT&T 2.4%, SEL 1.5%, Tandem 1.5%
**Next 18 months includes: Prime 2.6%, AT&T 2.3%, SEL 1.6%, Tandem 1.6%

FIG. 5

VAX PRODUCT MIX

PERCENT OF RESPONDENT VAX* PURCHASES



*Excludes unspecified VAX models; VAX-II/725 and VAX-II/782 quantities nominal in these data

with DisplayWrite and TopView. By the same token, Wordstar's star seems to be falling. While TopView, IBM's windowing package, is currently in use at only 2.6% of the survey sites, users indicated that figure would reach 6.6% by the end of next year. Lotus's Jazz is now at 2.1% of the sites but the survey predicts it may get to 5.4% in the same time period.

Compatibility has been an issue in the pc market ever since IBM unveiled its market-winning PC in 1981, and this

For the first time, the IBM PC ranked ahead of Apple for software availability.

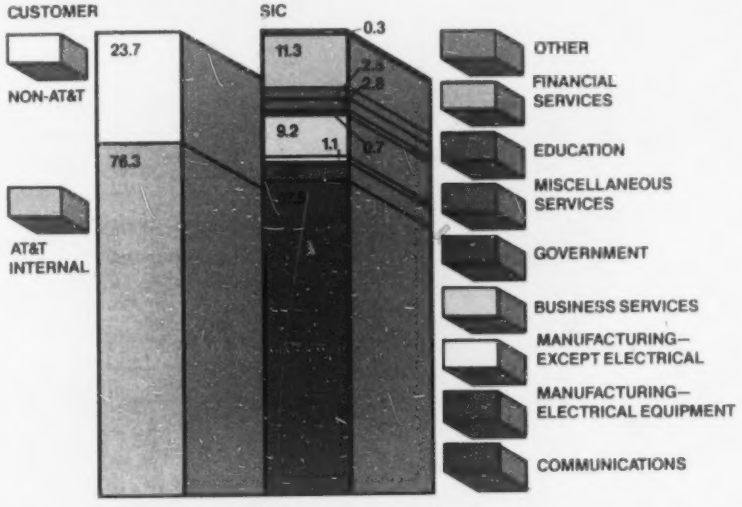
year's survey shows that systems-level compatibility is more important (64% of sites) than applications-level compatibility. This augurs well for the equipment manufacturer but less so for the independent software supplier. Of those sites that had standardized on one or two pc suppliers, 69% chose to do so along systems lines (MS/DOS, for instance), but only 26% at the software package level (e.g., Lotus 1-2-3).

Lotus is the major beneficiary of the ongoing standardization of pc software packages. Two fifths of the respondents have chosen 1-2-3 as a standard

FIG. 6

AT&T 3Bs SLOW TO TAKE OFF

RESPONDENT PLANNED 3B UNIT PURCHASES



- Manufacturing-Electrical Equipment SIC includes old Western Electric
- Communications SIC includes the old Bell Operating Companies
- Business Services includes computer and data processing service (i.e., much of systems house population)
- Manufacturing-Except Electrical includes office machine suppliers (e.g., hardware oems)
- These data do not reflect the recent very large 3B contract awards from the government sector (e.g., NSA)

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VT240 Graphics Terminal	1,850	178	99	67
VT241 Color Graphics Terminal	2,650	255	142	95
LN03 Laser Printer	3,295	316	176	119
TI				
TI707 Portable Data Terminal	$ 550	$ 53	$ 30	$ 20
TI820 Data Terminal PKG KSR	1,995	192	107	72
TI855 Dual Mode Printer	725	70	39	26
TI865 Dual Mode Microprinter	1,095	106	59	40
WYSE				
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WY75 Video Terminal	559	56	30	20
WY85 Video Terminal	559	56	30	20
PANASONIC				
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NRTHN TELECOM				
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package, followed by Ashton-Tate's dBase product at 9.2%.

When it comes to pc hardware with an operating system, IBM is the hands-down winner. Of those sites that have chosen one or two standard suppliers, IBM was mentioned by three fifths of the sites, followed by Apple's 7% and Compaq's 6%, IBM winning even where another vendor is the major supplier of minicomputers: only 17.8% of DEC sites have standardized on DEC micros—52.6% have chosen IBM. In sum, IBM has captured more than half, 56.3% to be exact, of the sites with microcomputer installations. Apple is left with only 9.9% (down from 42% in the 1981 survey) and DEC with only 4.9%. IBM's share promises

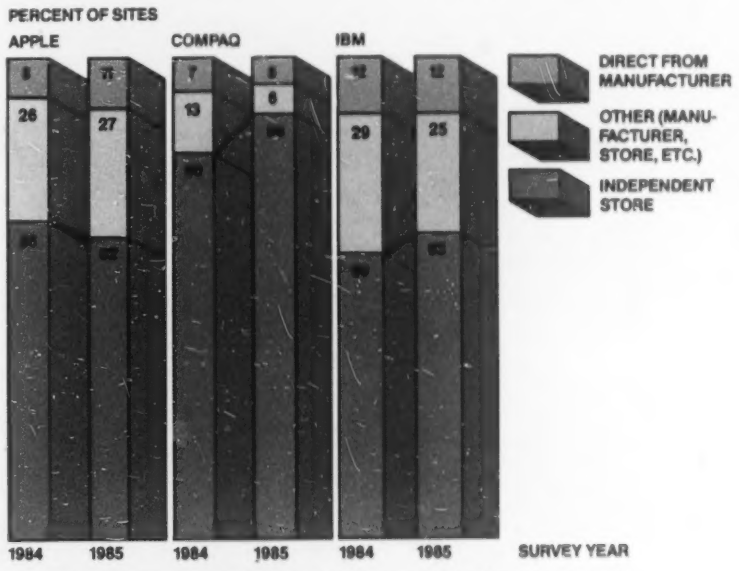
The few new pc users are, not surprisingly, choosing IBM as their main supplier.

to grow to 62% next year, according to respondents' planned purchases; Apple's share will drop by a half, to only 5%. Compaq and AT&T will each gain, however, the former up 1% to 5% and the latter tripling its current 1% share. Of the more than 90,000 pcs purchased by survey respondents in the 18 months preceding the survey date, 53.1% were from

FIG. 7

PRIMARY CHANNEL FOR PC HARDWARE ACQUISITION

Query: What is the primary channel through which your organization acquires its pcs?



• For DEC, HP and Wang, however, 60%± cite "direct from manufacturer" as primary channel

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IN FOCUS

FIG. 8

PC APPLICATIONS SOFTWARE

Query: Which pc applications software package does your organization principally use now and which are planned for use (initially or additionally) in 1985/86?

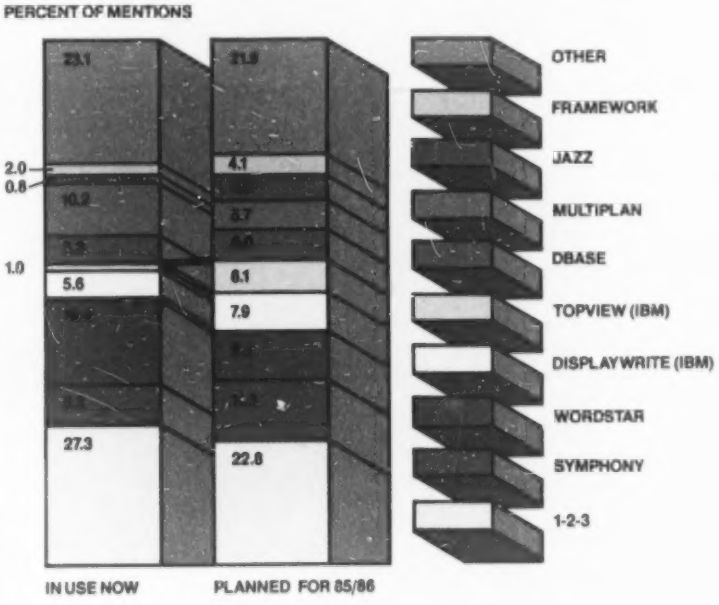
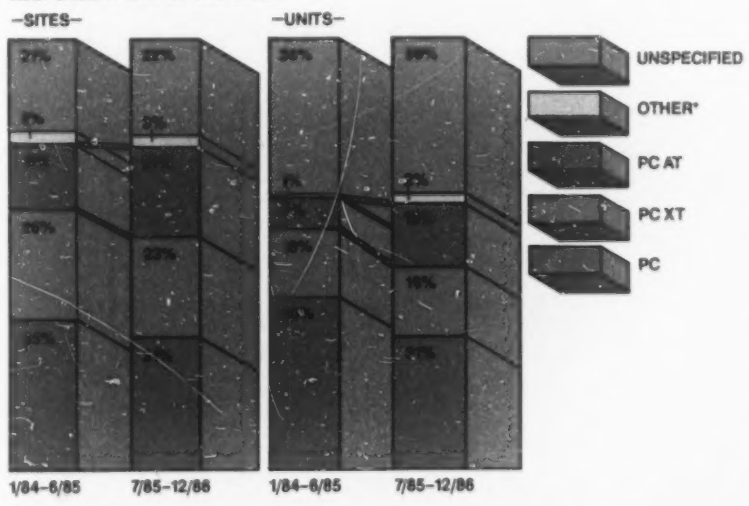


FIG. 9

IBM PC PRODUCT MIX

Query: How many personal computers were acquired by your organization during the past 18 months (1/84–6/85), and how many are planned for the next 18 months (7/85–12/86)?



*Principally 3270 PC

Note: PC/XT and original PC still comprise over half of respondents' personal computer unit buys from IBM.

Ronald Reagan
President Ronald Reagan

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IBM, 14.2% from Apple, 6.5% from DEC, and 4.4% from Zenith.

IBM will see the PC AT do well, that machine comprising 23% of the IBM PC units users plan to purchase in 1985-86; the original PC and XT versions will show a combined share of 73%. In terms of sites purchasing PCs, the AT will go to 21%, while the two previous models will go to 56%. The 3270 PC is still a low-volume product with this survey population, accounting for only 2% of planned unit purchases, or 3% of the sites.

Asked if they anticipated any major systems introductions by their vendors this year, 36% of IBM PC user sites answered affirmatively, down from the 48% recorded last year when the survey was taken just a month before the long-awaited AT was unveiled. This year's survey was taken just after IBM told customers that there would be no PC2 introduction this year.

The PC's importance to IBM showed in the fact that 62% of the projected mini/micro dollars to be spent with IBM by this year's survey respondents will go for PC equipment. Earlier this year, the DATAMATION/Cowen survey of IBM mainframe users showed that they would spend 28% of their IBM dollars for PC gear.

When it comes to pc hardware with an operating system, IBM is the hands-down winner with 60% of the sites.

As its overall market share has dropped, Apple Computer's product mix has changed. Only 19% of the specified Apple unit volume was Macintosh hardware, compared with 52% for the Apple II during 1984-85. But the following 18 months promise to see the Mac get 40% of Apple's shipments to these users, while the model II's share falls to 32%.

Peripherals purchases were down this year. In the under-20MB hard disk category, for instance, unit shipment growth over the previous year was only 12.9% (compared with the 219% measured in the 1983 survey), and in the 20MB to 100MB range, growth was 65.8% (down from 115% last year). Even worse were alphanumeric crt terminals, at minus 8%.

The microcomputer has made its biggest impact in commercial computing; it was the most frequently cited vehicle for new applications in that sector. Minis continue to be favored more heavily than pcs in scientific/technical computing. ◉

To order the complete 1985-86 DATAMATION/Cowen & Co. Mini/Micro Survey results for $795, please call Don Potts at (704) 568-5854.